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GEOGRAPHIC INTELLIGENCE REPORT

BAKU-ASTARA COASTAL REGION



CIA/RR-GR-37

7 January 1954

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1. CIA Map 12979. Eastern Azerbaydzhan SSR, 1:1,250,000 *
- ✓ 2. AMS Series 501. NS 39-10, NJ 39-1, NW 39-5, 1:250,000
- ✓ 3. 39 aerial photographs of the Caspian coast.

* Map 12979 is no longer available. It is a reduced reproduction of the eastern half of the Soviet map AZERBAYDZHANSKAYA SSR 1:600,000 GUGK, Tbilisi, 1952 -- which is merely a general orientation map.

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THE BAKU - ASTARA COASTAL REGION

I. Introduction

This study is an analysis of selected geographic aspects of the Baku - Astara Coastal Region of the Azerbaydzhan SSR. The region is located along the western shore of the Caspian, stretching from Baku southward to Astara on the USSR - Iranian border. It extends inland for a distance of approximately 15 miles.

II. Terrain

The Baku - Astara Coastal Region can be divided into three major physical areas, namely (1) the northern area, which takes in all of the region north of the Pirsagat Valley and which includes a narrow coastal plain backed by outliers of the Great Caucasus Range, (2) the central lowland which extends south from the Pirsagat Valley to Lenkoran', and (3) the southern area which includes a marshy coastal belt between Lenkoran' and Astara backed by the Talysh Range.

A. Northern Area

The northern area consists of two sub-areas -- a narrow, sandy coastal plain and the much larger inland sub-area of rolling highlands with numerous volcanic hills and salt lake basins (Figure 1).

The coastal strip between Baku and the Pirsagat River Valley is characterized by a narrow beach with sweeping bays, sharp capes, and offshore volcanic or sand islands. The gradual lowering of the level

of the Caspian in recent years has resulted in a considerable increase of newly exposed, poorly drained land near the water's edge. Southward from Mys (Cape) Shikhov the coastal lowland lies below mean sea level and varies in width from about 2/3 of a mile to 5 miles.

Pre-World War II data described Mys Shikhov as a cape where hills came down to the edge of the sea. However, more recent information indicates that as the level of the Caspian lowered a narrow beach emerged between the hills and sea, and a former inlet into southern Baku has disappeared.

Directly west of the hilly southern part of Baku is Dolina Yasamal, the north-south valley which lies below sea level. Dolina Yasamal flares out to the southwest where it is occupied by 3 interconnected salt lakes. The salt lakes are surrounded by a lowland, which consists of an extremely narrow strip on the inland side and a somewhat wider, unbroken bar seaward. Elevations along the sandy bar between the lakes and sea vary from 35 feet above sea level to about 90 feet below. Two channel markers are located on the bar southeast of Ozero Krasnoye. East of Puta is Gora Lok Baton, a circular depression-topped, mud volcano that rises about 300 feet; it is surrounded by an irregular marshy lowland which is below sea level. Lok Baton is a dormant volcano which erupted as late as 1935. From Puta Village, the low-lying coastal belt extends southwestward to the village of Sangachly. Along the edge of the sandy beach elevations are as low as 90 feet below sea level. Elevations of the salty marsh land toward the interior increase gradually

to sea level and then rise abruptly on the flanks of isolated mud volcano outliers of the Caucasus Mountains.

South of Sangachly, the shoreline has 3 bays, one north of Mys Sangachal, one between Mys Sangachal and Mys Alyat-Kosa, a third, on which the town of Alyaty (Alyat) is located, southwest of Mys Alyat-Kosa. The cape and bay part of the lowland coast is a dry area marked by stretches of sand dunes, ravines reaching to the sea, a profusion of sandy hillocks north of Mys Alyat-Kosa, and steep natural embankments (sea terraces) south of Mys Sangachal and near Alyaty. Elevations range from 35 feet below sea level to sea level. Slopes are gentle. Widths of the lowland vary from about 1 mile near Sangachly to approximately 4 1/2 miles at Mys Alyat-Kosa.

Four islands and an oil well platform lie athwart the entrance to Baku Bay. From east to west the islands are : Ostrov Peschanyy (the largest), Ostrov Vul'f, Ostrov Plita, and Ostrov Nargin. All four islands are partly sandy. Ostrov Nargin has a relative relief of about 225 feet and has a light house and a number of channel markers. Ostrov Plita also has a light house. Northeast of Mys Shikhov offshore oil wells lie close to the mainland, and oil drilling operations are being conducted on and around Nargin Island.

Midway between Mys Sangachal and Mys Alyat-Kosa and about 7 1/2 miles offshore is the low flat island, Ostrov Duranayy. Two low islands lie directly east of Mys Alyat-Kosa; the first is less than a mile from the mainland, and the second, Ostrov Bulla, which has a

light on its eastern shore, is about 7 1/2 miles from the mainland. Ostrov Glinyanyy is a pan-shaped island about 2 miles directly west of Alyaty. The western part of the island is low and sandy; the relative relief is 95 feet, a range from -85 feet to 10 feet about sea level.

Inland from this coastal strip are rolling highlands containing numerous circular, steep-sided volcanic hills, salt lake basins, intermittent stream valleys, and precipitous canyons reaching to the desert.

The salt lakes, which are fed by intermittent streams, lie in a series of depressions 15 miles west of Baku. The more prominent hills adjacent to the lowland rise to elevations of 700 to 1300 feet. Some of these hills are old volcanoes with fairly steep slopes which in places become precipitous. Many of these hills have been deeply scarred by ravines. Prominent peaks along the coast to the south of Baku include Gora Lok-Baton (Figure 2), about 300 feet high; Gora Takhtaly-Kaya, between Puta and Kara-Dag, 1,245 feet in elevation; Gora Tornagly-Akharna, 385 feet; and Gora Osman Bogy Dag (Gora Dalight on the AMS map), exceeding 1,245 feet; Gora Kyagniza-Dag, a circular mountain with a thumb-like southern extension, 1,310 feet; Gora Gichik-Dag, 660 feet, Gora Kir-Dag, 860 feet, Gora Kotur-Dag, a peak with a long, knife-like ridge on the north side that lies 13 miles northeast of Alyaty, 720 feet.

Toward the interior of the Baku - Astara Region peaks become higher and closer together. The two highest peaks are Gora Tauragay,

9 miles west of Bangachly, 1,315 feet; and Gora Kalender-Tapa, a mud volcano 6 miles north-northwest of Gora Tauragay, 1,730 feet high. Slopes of 50 to 80 percent are common in the west. The southern edge of the highland area ends abruptly at the Pirsagat River.

B. Central Area

The central area is basically a level lowland which extends south from the Pirsagat Valley. Near Frishibinskoye the lowland begins to taper until at Lenkoran' it consists of a 5-mile strip between the Talysh Range and the sea. The area includes the wide flood plain and delta of the lower Kura. The major exceptions are a few isolated low hills and the hilly area immediately south of Navagi, which is an outlying spur of the Caucasus Mountains. Practically all of the lowland lies below the mean level of the Black Sea. The major types of lowland terrain features include swamps, marshy meadows, streams with imperceptible divides, an extensive area of sand dunes, low narrow ridges, lakes, and streams. Where irrigation is available some of the land is intensively cultivated. Beaches, capes, bays, deltas, bars, spits, and offshore islands are common coastal landforms.

From Navagi (about 100 feet above sea level) the Pirsagat River valley slopes gradually to the Caspian shore (85 feet below sea level). Southeast of Navagi, the valley constricts to a width of 3 miles then fans out again. Small patches of sand and marshy meadowland are features of the lower valley.

The prominent highlands between the Pirsagat Valley and the Alyaty - Ali-Bayramli railroad are dominated by Gora Bol'shoy Mishov, a mud volcano mountain deeply scarred by innumerable canyons and ravines. This peak rises more than 960 feet above the nearby lowland, and has slopes of 40 percent in many places. The rough hill land extends eastward from Gora Bol'shoy Mishov and culminates in the circular mud volcano, Gora Kalmas, which has a height of 655 feet. It, too, has steep slopes (over 50 percent) and is deeply cut by numerous gorges.

The coastal configuration south of Alyaty to the Kura delta consists of wide sweeping bays, 2 old capes (Mys Pirsagat and Mys Byandovan), and a new one south of Mys Pirsagat -- formed recently as the sea receded. Sandy beaches and marine terraces prevail along the Alyaty - Kura coast. A series of small, low islands are also encountered at various distances offshore. Both Mys Pirsagat and Mys Byandovan are distinctive landmarks above the adjacent sea and lowland. The relative relief of Gora Khaman-Dag at Mys Pirsagat is about 260 feet, from 65 feet below sea level to 195 feet above. The hill at Mys Byandovan rises from minus 80 feet to 155 feet above sea level; the relative relief is thus 235 feet. Near the village of Byandovan, midway between these 2 capes, Gora Boz-Dag (Gora Akh-Zyvyr) exceeds 390 feet in elevation and has a total relief of 475 feet. A ridge extension of Gora Boz-Dag reaches the coast at Byandovan and continues south to the small hill Gora Zayach'ya which has a relative relief of 110 feet. Nowhere else along the shore from Alyaty to Lenkoran' do elevations exceed mean sea level.

The Kura delta projects southeastward about 10 miles beyond an otherwise straight portion of the coast line. Most of the delta is swampland which lies 65 to 80 feet below sea level. A sandy bar separates Ozerb Yakopinskoye from the sea, and in many places marine terraces parallel the shore. The arms of the Kura River are often paralleled by natural levees.

South of the Firsegat River and behind the coastal strip is a 9-mile wide belt containing sand dunes, salt pans, and passable swamps, which extends to within a few miles of the Kura River. In addition to the dunes, other major relief features are mud volcanoes and extinct volcanoes. Average relative relief in this sandy waste land is about 10 feet.

West and south of the sandy coastal zone is the Kura - Akusha valley occupied by a large maze of streams, irrigation canals, drainage ditches, swamps, dikes, levees, as well as a few lakes. Elevations are generally low, and relative relief is significant only along river bank levees, the steep-sided old stream channels, or on a few small mud or extinct volcanoes. The volcanic ridge 4 miles east of Sal'yany, with points 130 feet above the adjacent flood plain of the Kura, is the site of many old burial mounds 3 to 30 feet high. Gora Kyursanga, a circular hill 12 miles directly west of Byandovan, rises 250 feet above the surrounding plain and has 40 percent slopes. It has a dense pattern of deep dissection.

The exact delimitation of the coast between the mouth of the Kura and Lenkoran' cannot be ascertained, but it is known that much

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low land has recently been exposed by the receding Caspian. Kaliv Imani Kirova, the bay south of the Kura delta has decreased in size so much in recent years that the former strait west of the island chain Ostrov Ivanovskiy - Ostrov B. Kulagin - Ostrov Kurinski - Ostrov Sars may have disappeared, and the islands are now part of the mainland. A swampy, salty, sandy lowland rings the bay on 3 sides. The spit Kurinskaya Kosa, enclosing Kirova Bay to the east, is slightly more than 1 mile wide at its narrowest part and has an average elevation of 30 feet below mean sea level. A sandy beach ridge backed by swampy low land extends from Port Il'icha almost to Lenkoran'. On the beach north of Port Il'icha 2 mounds, now extinct, have been thrust 50 feet above the surrounding land. Most of the lowland between the swampy area of Kirovskiy Zapovednik and Lenkoran' is devoted to rice cultivation. However, the long stretch of rice fields, with their closely-spaced small check dams, is interrupted in many places by patches of swamp and meadow land.

C. Southern Area

The southern area is divided into 2 distinct sub-areas -- the narrow, low, subtropical coastal plain south of Lenkoran' and the rugged, forested Talysh mountains in the west (Figures 3 and 4).

Most of the lowland belt averages about 4 miles in width, but in the south it bulges out to a width of 5.5 miles. The coastal plain lies below mean sea level and has a gentle slope down toward the sea. The Caspian coast line between Lenkoran' and Astara is regular with very few indentations. At the beach the land rises slightly (10 to

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20 feet) before dropping to the water's edge. From the Lenkoran' (Lenkorenda) River to the village of Kholmili a beach terrace separates the low rice land from the Caspian. South of Kholmili to Astara, an irregular beach ridge in places only a few yards wide is backed by rice fields and by a large impassable swamp which ends 3 miles north of the Iranian border. The Lenkoran' River delta is a sandy projection with a small island lying between the 2 forks of the river. The beach is also sandy for a distance of nearly 5 miles north of Astara (Gay).

Relative relief is slight throughout the lowland (Figure 5). The most prominent terrain features are a number of high banks along sections of the various streams, and old terraces, some of which rise as high as 100 feet above the Caspian.

Although the eastern edge of the Talysh Range is sharply defined, there is a noticeable degree of difference in the abruptness with which the various portions of the range rise from the coastal plain. In the extreme north the rise of the foothills above the plain is quite gradual. Five miles west-northwest from Lenkoran' a hill rises 760 feet above the nearby lowland in a horizontal distance of 2,295 feet resulting in an average slope of 34 percent.

South of Lenkoran' the Talysh Mountains rise abruptly from the coastal plain (Figure 6); several peaks tower more than 1000 feet above the plain. A mountain directly west of the coastal village of Khutarki (located 1/2 mile north of Tazakend) has an elevation of

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1,145 feet. Slopes are greater than 40 percent and numerous ravines radiate from the top. Five miles to the south a mountain between the lower Tangyartu River and the coastal plain is 985 feet above sea level and has slopes in excess of 50 percent. Slightly over 1 mile north of the Iranian border, another steep-sided mountain rises 1,065 feet above the lowland.

South of Lenkoran elevations increase rapidly from about 2,500 feet at a distance of 3 miles from the plain to 4,000 feet at a distance of 9 miles, and to 5,000 feet at 17 miles inland. Elevations greater than 5,000 feet are found frequently along the crest of the Talysh chain which marks the Soviet-Iranian boundary. Deep gorges, vertical cliffs, and steep slopes are characteristics of the eastern Talysh Mountains. With few exceptions, the stream valleys are deeply entrenched and are very narrow. However, the flood plain of the lower Lenkoran River, the width of which exceeds 1/2 mile in places, extends 7 miles into the mountains. East of Pensar at the confluence of the Tangyartu and Qazaku Rivers, a plain 1 mile wide and slightly more than 1 mile long has been formed and is connected with the coastal lowland by a narrow water gap. The lower Astara Valley (Figure 7) has a width of about 1/2 mile as far as Ordzhmaglya, 2-1/2 miles west of the coastal plain.

III. Hydrography

A. Offshore Characteristics

Information concerning the pronounced drop of the Caspian Sea level indicates the configuration of the coastline and offshore

islands has changed significantly in recent years. Lack of detailed information, however, precludes accurate analysis and description of the changes.

In 1949 the level of the Caspian Sea was reported to be 92 feet below mean sea level. Although the Caspian is a tideless sea, it is subject to annual fluctuation. The range throughout the year is from 12.5 to 21.5 inches. The highest level occurs near the end of June, and the lowest level occurs between January and March.

The following postwar descriptions are for nearshore approaches to a number of beach areas between Baku and Astara. The approach to the beach area west of Mys Shikhev has flat-bottomed slopes, a submerged offshore bar immediately in front of the beach, light surf, and drift to the west. The approach to the beach east of Mys Sangachal has a flat bottom, a rocky reef 0.5 mile offshore in the south, moderate surf, and drift to the south. The approach to the beach north of Mys Alaby has flat-bottomed slopes, a rocky reef 1 mile offshore, moderate surf, and drift to the south. The approach to the beach north of Mys Piragat has flat-bottomed slopes; Ostrov Glinyanyy is about 3 miles offshore, and sunken rocks are located about 1 mile offshore; surf is moderate; drift is to the south. The approach to the beach north of Mys Byandovan has flat-bottomed slopes, rocky shoals extending 1 mile offshore, moderate surf, and drift to the south. The approach to the beach south of Mys Byandovan has flat-bottomed slopes, a rocky shoal 6 miles off the northern end, moderate surf, and drift to the south.

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The approach to Kurinskaya Kosa has flat-bottomed slopes, scattered shoals, moderate surf, and drift to the southwest. The approach to Ostrov Sara has flat-bottomed slopes, light surf, and drift to the southwest. The approach to the beach area north of Astara has flat-bottomed slopes, sandy shoals 0.5 mile offshore in the north and 1.5 miles in the south, moderate surf, and drift to the south.

B. Inland Characteristics

Major hydrographic features in the coastal zone from Baku to the Iranian border consist of intermittent salt lakes, which turn into salt pans in summer, marshes, and intermittent streams in the northern area; a dense network of permanent streams, several large lakes, and numerous swamps in the central area; and in the southern area a heavy concentration of springs and mountain streams in the Talysh Range and rivers, swamps, and lagoons in the coastal lowland.

1. Northern Area

On the west side of a beach ridge a few miles southwest of Baku, 3 interconnected rectangular intermittent salt lakes parallel the shore for 9 miles; the average width of the lakes is about 1 mile. Ozero Krasnoye is in the center, and Byvshiy Zaliv Puta (formerly a gulf) is in the southwest. Several other intermittent saline lakes with salt-encrusted shores fill shallow depressions west of the coastal lakes and hills. The largest is Solon' Gerush-Altnu-Chalasi, a salt lake about 3 miles long and 1 mile wide, which is located 8 miles due west of Puta. Steep, natural embankments rise at the northern and

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southern edges of the lake basin, and rocky slopes with even grades border the northeastern portion. Three other shallow salt lakes are located less than 5 miles north of Balon' Gemush-Altnu-Chalasi.

Most of the small, short, intermittent streams in the coastal zone west of Baku flow into the salt lakes and marshes or disappear into the sandy ground. It can high water occurs in spring. By late summer the water courses tend to be dry. A swamp of indefinite extent borders the north edge of Gora lak Bakon, and marshy areas with numerous drainage ditches are located west and south of Kara-Dag. An aqueduct which begins at Shekh-Kaya follows the lowland between Gora Diligili and Gora Kysguzlar-Dag southeastward to the coastal railway. Another aqueduct, 4 miles long, is located between Dzheyrankachmez River and the village of Chir-Dag. Innumerable gullies and ravines mark the mountains and hills north of the Pirsagat River, but permanent streams are entirely lacking.

The first large permanent river south of Baku is the Pirsagat which has its source high on the southern flank of the Caucasus. This stream usually terminates in the sandy, swampy wastes southwest of Atyaty. Only during the spring high water period does the Pirsagat reach the Caspian Sea. The Pirsagat Valley southeast of Navagi contains numerous tributaries and distributaries of the main stream, short disconnected streams appearing and disappearing at random, a number of passable salt marshes, swamps, and cisterns concentrated along the base of the hills flanking the valley to the north and south. A section of the

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river north of Gora Kalmas dries up completely during the dry season. All Pirsagat channels follow twisting courses. The average current velocity near Navagi is 1.3 feet per second. In general, the stream banks are low but in 2 places, where the river swings close to hills, it is entrenched between high banks. A number of railroad bridges span the numerous branches of the Pirsagat southeast of Navagi and southwest of Alyaty.

2. Central Area

An outstanding characteristic of the rough hill land south of the Pirsagat River is the multitude of high-gradient ravines and gullies which are dry stream beds for most of the year. The hill land also contains springs, some of which are saline, clusters of wells and cisterns, and a small salt marsh at the southern edge of the hill.

The lower Kura floodplain is remarkable for its great number and variety of hydrographic features. The wide, deep Kura River dominates the plain (Figure 2). Countless closely-spaced streams along the Kura flow outward from the main stream in many directions to lowland swamps. Lakes, swamps, and salt marshes are extensive and numerous in the Kura lowland.

The lower Kura has pronounced meanders, high natural levees, oxbow lakes, man-made dikes, and a long irregular delta where the river branches into several arms before emptying into the sea. The current of the lower Kura is sluggish, averaging from 0.3 feet per second to 1.6 feet per second. At low water the Kura is 400 to 600 feet wide.

and 18 to 30 feet deep. The stream is frequently higher than the adjacent land, and therefore requires protective dikes in many places. High water overflow usually occurs sometime between March and the end of June. Low water periods occur from July through September and in the winter. The coastal section of the river does not normally freeze in winter. Sal'yany is the point where the Akusha River, an important arm of the Kura, branches from the main stream and twists its way first southwest and then southeast toward Zoliv Dueni Kirova. Countless ditches also branch out from the Akusha. The Akusha is from 100 to 150 feet wide, 4.5 to 10 feet deep, and has an average velocity of 1.5 to 1.9 feet per second. The regime of the Akusha is generally the same as for the lower Kura with maximum flow occurring in spring and minimum flow in late summer and in winter. The Akusha is bridged in many places.

The extremely dense network of large and small streams and ditches, many of which are diked, could seriously hamper vehicular traffic or movement on foot. The drainage and irrigation ditches frequently form small rectangles a few hundred yards wide and less than 1 mile long. In the spring, hundreds of temporary ponds and lakes result from overflow of the Kura and secondary streams.

A number of salt lakes are located on both sides of the Kura. About 7 miles west of Sal'yany is the large salt lake Ozero Makmudchala (the northern Akh-Chala on the AMS map) and about the same distance southwest of Ozero Makmudchala is a large swamp lake, Ozero Akh-Chala which is navigable for small boats. Both lakes fluctuate in size and are bordered by swamps and

salt marshes. The outlet of Makhmadchala is the Armyanka River which flows southward at a rate of 0.3 to 3.2 feet per second to and through the large swamp Kirovskiy Zapovednik (a reserve for water fowl and other birds).

Another salt lake lies in a sandy depression midway between the Kura at Sal'yany and the ridge about 3 miles to the east. The 3-mile long lake contains several islands three of which are topped by old burial mounds. On the Kura delta north of the river is the pouch-shaped lake Ozero Yakopinskoye which is bordered by sand on 3 sides. At Neftechala there is a narrow lake 4 miles in length. A railroad bridge and 2 hard-bottomed fords 1.6 feet deep cross it. Large expanses of passable salt marsh which vary in extent in different seasons are located (1) on the sandy coastal belt between the Pirsagat and the Kura, (2) straddling the Kura River on the delta south of Ozero Yakopinskoye, (3) from Neftechala north to the Kura, (4) about 6 miles southeast of Sal'yany (5) north of and adjacent to Ozero Akh-Chala, and (6) along the old north and northwest shores of Zaliv Imeni Kirova. Of the many reed-covered passable swamps, Kirovskiy Zapovednik is the largest. It extends in an ever-widening crescent from the southern shore of Ozero Akh-Chala to the old shores of Zaliv Imeni Kirova and is about 2 feet deep. A passable swamp (1 to 2.2 feet deep) is located at the northeastern edge of Ozero Akh-Chala. Swamps also occupy the eastern half of the Kura delta and the northern part of Kurinskaya Kosa. Many smaller swamp and marsh patches are distributed throughout the Kura Lowland.

Potable water is not abundant in the Kura lowland. An aqueduct joins the towns of Neftchala and Bol'shoy Orit.

3. Southern Area

Between Kirovskiy Zapovednik and the Iranian border the hydrographic features of the coastal lowland consist of streams, lakes, marshes, swampy lagoons, and rice paddies. The streams flow from the mountains heavily loaded with alluvial material, which they deposit onto the plain in the form of fans at the mountain base. Between Novyye Alvasy and Girdani extends a long, wide rice field filled with small paddies, dams, ditches, and transverse streams, and interspersed with patches of swamp and meadow. Three lakes, 7 to 10 feet deep, surrounded by a reed-covered swamp are located between Port Il'icha and Lenkoran'. Except for a 4-mile long, 5-foot deep, swampy lagoon north of Astara, rice fields, reed or forest swamps and meadows occupy most of the land between Lenkoran' and the Astara River.

The swamps and swampy lakes, which fluctuate in size, are fed by streams, underground seepage, and frequent rains. Most of the swamps and lakes are salty. The coastal plain is generally deficient in good drinking water during the drier season. Springs and wells are located close to the mountain base. The springs and wells normally have a small discharge of good quality water.

In the Talysh Mountains springs are much more numerous and are the sources of many streams. Heavy precipitation in the mountains feeds the numerous streams which empty into the Caspian Sea or into the

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bordering lowland. The drainage pattern is dendritic with the main streams having a general eastward orientation. Rivers have high gradients and narrow steep-walled valleys. High water on the largest rivers usually occurs in fall and winter, with low water in late summer. The Vayk-Chay, a large stream flowing from the northern part of the Talysch Range, has a velocity varying from 1.2 to 3.2 feet per second. Its valley is narrow in the mountains and its channel is bordered by high steep banks in the lowland. Fords are numerous, but the stream is also bridged at a number of places. The Balady-Chay, to the south, is a narrow stream in the mountains but broadens in the Talysch lowland and then meanders through the coastal plain. On the plain it bends around the town of Balady, flows north at 0.3 feet per second through a vegetable garden area, and finally runs eastward through a swamp to the sea. Numerous bridges cross it. The Lankoran-Chay begins in the eastern mountains, flows east between high banks across the forested Talysch flanks and into the swampy lagoon north of Lankoran. It then flows north toward the Balady-Chay at a velocity of 1 foot per second.

The Lankoran' (Lankoranku) River grows rapidly as it flows eastward, collecting waters from its many tributaries. Near its junction point with the north-flowing Laker-Chay, the steep valley sides of the Lankoran' River Valley broaden out to a valley floor about 750 yards wide. At the point where the Lankoran' spills into the lowland, the velocity is 1.6 feet per second; the channel is

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frequently braided. Steep banks border sections of the channel. At the sandy delta, the river forks, forming 2 mouths. A number of bridges and fords cross the Lankaran but there are also long stretches with no suitable crossing sites. A major Lankaran tributary is the northeastward flowing Vasharyu, which enters the main stream at Sayfilar, 6 miles southeast of the town of Lankaran. The velocity of the Vasharyu is 2.6 feet per second. West of Sheakeran, the northeastward-flowing Chaku and Tangaryu Rivers converge to form a small floodplain pocket. The enlarged river then breaks through the mountains into the lowland where its waters are dissipated in the rice fields and swamps. The current velocity of the lower Tangaryu is 2.6 feet per second. Several bridges span the Tangaryu in the highlands, but none are shown crossing the Ciscauc. A stream with a velocity of 2 feet per second enters the western side of the swampy lagoon which lies north of Astara. The outlet to the sea from the lagoon is through the beach ridge at Kalotagna.

The southernmost river of eastern Transcaucasia is the Astara-Chay which coincides with the Soviet-Iranian frontier (Figure 2). The upstream portion of the Astara-Chay valley is narrow with high, steep sides. The river velocity is 13 feet per second. The only bridge-crossing is located at the town of Astara.

IV. Vegetation

In the northern part of the region dry-steppe vegetation, consisting mostly of sparse grasses and low scattered shrubs, predominates (Figure 1). Feather grass, fescue, and brome are the principal grasses, whilst worm-wood is the characteristic shrub. The chief vegetative period occurs in spring and early summer, when the plants become bright green, flower, and reach knee-height growth. In summer, however, many of the plants die. The widely-spaced individual plants of the surviving vegetation turn dull green or brown. The open character of the vegetation permits unhindered movement. A second brief vegetative period occurs at the time of the fall rains. Some plants remain green throughout winter. The dry-steppe vegetation serves as winter fodder for sheep, goats, and other livestock.

In the central part of the region, dry-steppe and salt-marsh vegetation are present in the area northeast of the Kura River. In addition to the usual steppe plants, however, dense impenetrable thickets of tamarisk are characteristic. The tamarisk is a drought-resistant scrub tree, growing to heights of 10 to 12 feet. The undergrowth in the thickets is comprised mostly of the Russian olive, a low, stiff, prickly shrub.

The character of the vegetation changes along the Kura River. On the moist banks, the steppe vegetation is replaced by high, closely spaced tussocks of Pannetta grass and occasional small stands of poplar, willow, and other small deciduous trees. In the lowlands along the Kura and the Akusha Rivers crops are grown by irrigation. Southeast of the

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Akusha River Irrigation system is an extensive area of reed-covered swamp which reaches from Ozero Akh-Chaja to the old shore of Zaliv Inoni Kirova.

In the southern part of the region, dense deciduous forests are typical, especially in the Talysh Mountains (Figures 6 and 10). In the moist Lankoran' Lowland, the forests are interspersed with relatively large areas of marsh growth, as well as cultivated vegetation and meadow grasses. The varieties of trees comprising the forest differ with elevation. In the Lankoran' Lowland, bearded alder, poplar, pear, crab apple, and other small trees are characteristic. The trees grow in thick profusion. Also common are vines such as greenbrier, silver vine, and ivy. In many areas the dense forests entrined with vines are impassable. Iris and tripa are the most common marsh plants in the lowland. The cultivated vegetation consists mostly of fruit trees and rice.

On the lower slopes of the mountains, chestnut-leaf oak is the predominant tree. The generally dense understory of the oak forests is comprised chiefly of Persian parrotia, hornbeam, silk tree, and persimmon. On the high slopes the characteristic forest tree is the beech, while evergreen shrubs -- rhododendron, laurel-cherry, and holly -- usually comprise the undergrowth.

Salt marsh and sand plants are the characteristic vegetation along the entire sea coast and offshore islands. Salsola grass grows in scattered clumps on the sands closest to the sea and on part of the offshore islands. Further inland from the shore, small strips of

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tamarisk, wild rye, and black wormwood are the typical growth, especially on the dunes. Sea lavender occupies the sands in the dry basins near the sea.

V. Climate

The climate of the Baku - Astara Coastal Region is characterized by hot summers and moderately cold winters. Precipitation is generally scanty, except in the Lenkoran' Lowland and Talysh Mountains. Climatic data for the region were obtained from two stations, Baku and Lenkoran'.

A. Temperature

Temperatures in the region are not as extreme as they are in the interior of the Transcaucasus to the west, for the Caspian Sea has a moderating influence, bringing cooler summers and milder winters. The average annual temperature in the region is about 57°F. Both Baku and Lenkoran' have mean monthly temperatures of approximately 78°F for July, the warmest month, and 33°F for January, the coldest month. On some winter days the temperature rises above 50°F. Despite the mild winters frosts are not uncommon in January and February. Severe cold is rare, and in most years, ice is absent along the coast. In summer daytime temperatures above 90°F are common in July and August, but cool nights during which temperatures drop 20 to 30 degrees are the rule.

With the low temperatures of winter the relative humidity on the Baku - Astara coast is at a maximum. In fall the relative humidity on the coast will be fairly high on many days because of rainy weather.

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In summer the air is very dry and hot, with even the early morning hours frequently having low relative humidities.

B. Precipitation

Precipitation is generally scanty in most of the Baku - Astara Coastal Region. In the part of the region lying to the south of the latitude of Kyzyl-Agach, however, the precipitation increases and in the Lenkoran' Lowland and Talysh Mountains it is abundant. The average yearly precipitation of 50 inches for Lenkoran' is in sharp contrast with the average of 7.3 inches for Baku. In both Baku and Lenkoran' the maximum occurs in fall, and the minimum in summer. In November, the wettest month, precipitation averages 8.5 inches in Lenkoran' and 1.2 inches in Baku. Mud and soft ground conditions are characteristic during the fall rainy season. In July, the driest month, Baku averages only 0.2 inches and Lenkoran' 1.9 inches. Dry, dusty ground is typical in summer, especially along the central and northern sections of the coast. In the drier areas precipitation occurs on 2 to 3 days each month varying with the season. In the more humid areas it occurs on 3 to 11 days each month. In the coastal lowlands, some of the winter precipitation is in the form of snow. An intermittent snow cover from 2 to 6 inches deep is sometimes present for a few days. In the Talysh Mountains, however, snowfall is common throughout winter, and the snow cover may exceed 3 feet in depth in some places.

C. Surface Winds

North winds prevail throughout the year at Baku and west or northwest winds at Lenkoran'. The winds along the northern part of the

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coast are usually strong, often exceeding 33 miles per hour in velocity. Gales are characteristic at Baku in all seasons, but in summer the gale frequency reaches as high as 18 per month. Lenkoran' has many calm days, even in summer. In winter west winds at Lenkoran' are often associated with rapidly rising temperatures. In summer the area within a few miles of the coast has pleasant afternoon sea breezes while off-shore winds predominate at night.

D. Visibility and Cloud Cover

Fall, winter, and early spring are the cloudiest parts of the year. The number of days when at least 0.9 of the sky is cloud covered averages 13 to 20 days a month from October through March. Summer has the least cloudiness. In August, the month with the least cloudiness, the average is 4 to 7 cloudy days. Low, often continuous sheets of stratus clouds typify the cloud cover in fall and winter, while a broken cover of cumulus is usual in spring. Summer cloudiness usually consists of the cumulus type.

Fogs and dust are the principal restrictions to visibility along the coast. In contrast to the interior of the Transcaucasus, fogs may occur along the Caspian Sea coast throughout the year. The frequency of fogs in winter, however, is higher than in summer. The January average is over 3 days and the July average is less than one. Dust is common over the Caspian Sea coast throughout the year. Even when the sky is clear of clouds, the high content of dust in the air gives a hazy appearance to the atmosphere. Although fall and winter rains help to settle the dust, they likewise reduce the visibility.

E. Length of Day

Daylight lasts for approximately 9 hours in December and increases steadily to 12 hours in March. The longest days are in June, when there is an average of 15 hours of daylight. The length of day decreases at the rate of about 1 hour a month thereafter.

VI. Settlement

The population of the Baku - Astara Region is moderately dense, but unevenly distributed. The highest densities of 125 or more persons per square mile are found in the immediate vicinities of the two cities of Baku and Lenkoran*. In the foothills of the Talysh Mountains west of Lenkoran* densities are more moderate, ranging from 62 to 125 persons per square mile. Most of the remainder of the region -- the belt along the Kura and Akusha Rivers, and the foothills of the Caucasus in the northern part of the region -- is characterized by densities of 25 to 62 persons per square mile. Densities below 25 per square mile are encountered only in the marshy lowland which cuts across the region in a northwestern direction from the western side of Zaliv Imeni Kirova, and in the sandy coastal stretch between Alyaty and the mouth of the Kura River.

The northern area of high population density in the region stretches from Baku about 12 miles southwestward to the vicinity of Shongar, Kyzyl-Tepe, and Karu-Dag. The eastern strip of this area, which extends northward from Mys (Cape) Shikhov to Mys Bailov, is actually a southern extension of the city of Baku. Throughout this strip buildings and oil towers are intermixed with little discernible pattern. West of Baku

numerous scattered settlements are found, usually at intervals averaging less than 2.5 miles. The settlements here are small, even the larger ones consist of fewer than 200 inhabitants. The larger settlements are usually located at focal points along the main transportation arteries -- the paved roads and the railroad; whereas the smaller workers' settlements are scattered throughout the oil fields. In addition to these inland settlements there is a string of about a half dozen tiny fishing villages distributed along the coastline of this area. Most settlements are just irregular conglomerations of buildings. Some settlements have experienced growth in recent years. Kara-Iag is reported to have expanded considerably in size since World War II. A new residential area of one and two-story houses has been built and is occupied mainly by Russian oil workers.

In the area extending southward from Shongar and Kara-Iag to the east-west railroad between Alyaty and Ali-Bayramli the density of population decreases noticeably. Settlement consists primarily of numerous temporary camps, about 2.5 to 4 miles apart, that appear to be used for housing oil workers. Most are irregularly shaped clusters of a half dozen or dozen small buildings. These settlements are invariably located on the patches of low level land that are scattered in the hilly terrain. Generally one or more cisterns have been constructed near each of the settlements to provide water for the inhabitants.

In the northwest corner a slightly different settlement pattern appears in the vicinity of Khan-Kuli and Beyuk Kaftaran. This area is the winter headquarters for nomadic herdsmen. In summer these herdsmen

drive their herds northwestward to pastures at higher elevations of the Caucasus. The numerous isolated shacks which appear at fairly regular intervals along the railroad are probably shelters for maintenance crews. Fishing villages, which are usually located at the heads of the shallow embayments, are also scattered along this part of the coast.

In the broad lowland along the Pirsagat River the settlement pattern also changes abruptly. Settlements become fewer in number but larger and more compact. Before World War II the two largest, Navagi and Alyaty, each consisted of about 2,000 to 3,000 inhabitants. Navagi is located in the middle of an extensive grain area. Two miles southeast of Navagi is the Beriya (probably renamed by now) State Farm, which specializes in the production of grain. At-Bulakh (a town on the railroad 1 mile north of Mirizali) is an oil settlement whereas the importance of Alyaty appears to be derived from its function as a minor landing. The latter settlement has storage warehouses and good rail and road connections inland. A small sawmill is located nearby, apparently to process timber that is brought in by sea. Alyaty also includes a hospital and fishery. The hilly terrain between Navagi and the Alyaty - Ali-Bayramli railroad to the south also provides permanent sites for a number of yurtas (dome-shaped tents used by nomadic herds-men).

In the area between the Alyaty - Ali-Bayramli railroad and the Kura River the settlement pattern again changes. Settlement becomes localized almost entirely in the western half of the area, while the mixed sandy

and marshy eastern half is virtually uninhabited except for the oil field area near Pirsagat and a few small fishing villages directly on the coast (Figure 11). Khidyrlly, 1 mile northwest of Pirsagat, is a mixed settlement of oil workers and livestock herders. The buildings in Khidyrlly are constructed of clay, and for the most part are without windows. In the western half of the area the population is concentrated in small settlements about 3 to 5 miles apart. Most of the settlements are irregular clusters of buildings that form units of a state cotton farm. However, the three collective farm villages in the center, Novo-Khaladzh, Challaly, and Bashirabat (1 mile southwest of Challaly), exhibit shoe-string patterns. Most of the settlements are located along irrigation channels.

In the area from the Kura River south to the extensive swamp that runs between the northwestern side of Zaliv Imeni Kirova and Ozero Akh-Chala the population becomes somewhat denser but considerably more concentrated. Practically all of the population is distributed in an almost continuous line of elongated villages along the banks of the Kura and Akusha Rivers. The sole exception to this pattern is found in the area directly south of the Astanly - Bank portion of the Kura River where a number of villages are scattered at intervals of about 3 to 5 miles. A large number of sheds and summer shelters are also distributed throughout the irrigation fields.

The largest town in the area is Sal'yany, located at the point where the Akusha River branches from the Kura. Before World War II Sal'yany had a population of about 15,000 most of whom were Azerbaydzhani

and Russians. It is a major cotton ginning center for the Kura lowland. After the war a prisoner-of-war camp was located here. With the release of most of the prisoners of war in recent years the camp may have been converted for use by penal laborers.

Throughout the Kura and Akusha Lowland economic activity focuses on the production of Egyptian cotton. However, the processing of herring, carp, and sturgeon into caviar and other canned products is also important at the mouth of the Kura where two major fish processing plants are located at Bol'shoy Oriat and Znyudostovyy Kultuk. Farther to the south are two more plants at Kara-Kush and at the extreme tip of the Kurinskaya Kosa (Peninsula). Neftechala is the center of another expanding oil area. Several new settlement areas were developed here after 1945. According to one report, they consist of barrack-type residences for oil workers and their families. Before the war the town had its own landing pier on the coast, 5 miles to the southeast.

The extensive swamp that runs northwest from the Zaliv Imeni Kirova is devoid of any permanent settlement, but in the coastal lowland that extends along the coast to the south, settlement again takes on the pattern of small villages -- each an irregularly shaped conglomeration of buildings. They are generally distributed at distances of 2 to 3 miles, but there is a somewhat heavier density in the vicinity of Lenkoran' and along the Prishibinskoye - Lenkoran' road, where the population is engaged in the cultivation of rice. The populations of these villages average from 50 to 500 persons, but there are several

settlements that materially exceed this average. In the area north of Lenkoran' they include Prishibinskoye with about 5,000 to 6,000 inhabitants before World War II and Novyye Alvdyy and Kyzyl-Agach with about 2,500 or 3,000 inhabitants each. Arkevan, Giga-Chel, Khyi, Balady, and Port Il'issa have populations of about 1,000 to 1,500. Massaly was in the same population category before the war but recent Soviet small scale maps indicate its present population as being in excess of 2,000.

Lenkoran' has a mixed population of Russians, Armenians, and Azerbaydzhani totalling about 6,000 to 8,000 inhabitants before the war, but probably somewhat higher now. The town is a port of call for vessels en route from Baku to Iranian ports. However, the bay is so shallow that large ships can not approach closer than three miles from the shore. Most of it is an old town with narrow streets and one-story masonry houses (Figure 12). The industries are focused primarily on the processing of food products such as tea and fish.

South of Lenkoran' the larger villages include Archevan' with an estimated population of about 2,000, and Pensar and Sheakeran with about 1,250 inhabitants each. There are five villages, Gernatuk, Shikhakeran', Khelmili, Shakh-Agach, and Tangerud, which have about 1,000 inhabitants each.

Astara is a border town which extends almost uninterruptedly into Iran (Figure 13). It is important as a center for handling trade with Iran. A fish processing plant is also located there. Before the war Soviet Astara had a population of about 1,000 or 2,000 people. Since

then it has probably grown somewhat. A Soviet regiment of about 3,000 men is reported to be stationed there now.

On the forested slopes behind the coastal lowland, the population density drops off abruptly. Villages here are much smaller, probably averaging about 50 inhabitants, and rarely exceeding 100. Distances between settlements average about 3 miles, no more than in other areas principally because there is a noticeable dispersal of the individual households that compose each of the villages. Most of the settlements are located along valley lowlands, or in small clearings on the more gentle of the hilly slopes. The cultivation of tea is a specialized occupation of the inhabitants at the eastern base of the mountains.

VII. Ethnic Composition of the People

The population of the Baku - Astara Region is predominantly Azerbaydzhani, Talysh, Tats, and Great Russians comprise most of the remaining ethnic elements.

The Azerbaydzhani are largely a rural people, inhabiting the steppes in the Kura Lowland. In recent years, however, many have come to the coastal cities. In physical appearance, Azerbaydzhani are medium in stature, have long faces, dark hair, and brown eyes. Beards are common, especially among the old men. The Azerbaydzhani speak the Tatar language, which is similar to the Turkish spoken in Turkey. Tatar, together with Russian, serves as a common tongue along most parts of the coast.

The Talysh occupy the Lenkoran' Lowland and are primarily an agricultural people. The Tats, who are related to the Talysh, live

along the coast in the steppes near Baku. The Talysh and Tats resemble the Azerbaydzhani, but speak the Iranian language or dialects. All three groups are Moslem, and the Azerbaydzhani have religious ties with Moslem groups of the Near East and Central Asia.

The Great Russians reside in the towns, especially in the administrative and strategic centers. Russians can easily be identified by their greater physical stature and lighter complexions. Armenians, Jews, Persians, and more recent settlers from other parts of the Soviet Union and Europe also inhabit some of the cities in small numbers.

VIII. Transportation

A. Railroads

The entire north-south extent of the Baku - Astara Coastal Region can be traversed by rail, and a passenger service between Baku and Astara is available daily. The railway net consists of the eastern extremity of the Baku - Batumi line, the main trunk line across the Transcaucasus; the eastern end of the strategic Alyaty - Dzhulfa - Leninakan line; and the Osmarly Novyye - Astara line which serves the southern half of the coastal region. All of these lines are Russian normal gauge (5 feet). Only the Baku - Batumi line is double-tracked across the coastal region.

About 65 miles of the Baku - Batumi trunk line, from Batumi to Navagi, lie within the Baku - Astara Region. From Baku the line goes northward for about 8 miles to the junction of Baladzhary where it swings southward toward the Caspian coast. The line then runs within a few miles of the coastline to Alyaty. At Alyaty the route turns

westward, crosses the coastal region, and continues toward Tbilisi deep in the interior of the Transcaucasus. The line's principal economic function is to move petroleum from the Baku fields to the Black Sea port of Batumi. The railroad is paralleled by an 8-inch pipeline which is now used to transport kerosene. Within the coastal region the pipeline is apparently laid on the surface.

The easternmost 45 miles of the Alyaty - Dzhul'fa - Leninikan railroad line runs due westward across the Baku - Astara Region. As it runs westward this line diverges from the Baku - Batumi line, until the distance between the two reaches 3 miles at the western margin of the coastal region. Beyond the coastal region the Alyaty - Leninikan line parallels the USSR - Iran border.

The northern 15 miles of the Osmanly Novyye - Astara line lies outside the Baku - Astara Coastal Region. The line branches from the Alyaty - Leninikan line at Osmanly Novyye, 12 miles west of the Coastal Region. The line enters the region approximately 10 miles northwest of the rail junction of Sal'yany. From Sal'yany the line runs along the western margin of the coastal region to Prishibinskoye. The line then leads to Port Il'icha on the Caspian Sea. From Port Il'icha the line runs along the coast through Lenkoran' to the southern terminus at Astara.

From Sal'yany a single-track line extends 21 miles southeastward to Neftechala. This route was constructed primarily to tap the petroleum fields surrounding Neftechala. A narrow gauge (2 feet 5 1/2 inches)

petroleum line leads northward from Neftechala to the Kura River port of Bol'shoy Ornat.

The heaviest traffic of the entire coastal rail net flows over the relatively short rail stretch between Baku and Alyaty and the least amount, over the Sal'yany - Astara segment. Five passenger trains in each direction and several freight and oil trains run daily over the Baku - Alyaty stretch. Only one passenger train in each direction and one to three freight trains daily make the Sal'yany - Astara run.

Passenger trains make average speeds of 20 to 25 miles per hour between Baku and Navagi, about 15 miles per hour on the Alyaty - Dzhul'fa route, and 17 to 22 miles per hour on the run southward to Astara. Oil trains attain similar average speeds but ordinary freight trains average only 10 to 15 miles per hour throughout.

B. Roads

The Baku - Astara Coastal Region does not have an effectively integrated road system. Most roads are of local significance only; relatively few are improved. The trip between Baku and Astara however, can be made over improved roads.

From Baku to Alyaty the Baku - Astara road parallels the Baku - Batumi railroad. From Alyaty the road runs in a southwesterly direction to Sal'yany where a bridge provides a crossing over the Kura River. (Prior to World War II road traffic did not move directly to Sal'yany but continued to parallel the Baku - Batumi railroad to Kazi-Magomed, and then headed south to Sal'yany). South of Sal'yany the road follows the Osmanly Novyye - Astara railroad for a distance of 12 miles before

turning westward to Pushkino beyond the coastal region. The route then leads southward, passes through Astrakhan-Bazar, and reenters the region at Prishbinskoye. From Prishbinskoye to Astara the route skirts the base of the Talysh Mountains, emerging at the coast only at Lenkoran' and Astara. Between Prishbinskoye and Lenkoran' there is an alternate route through less densely settled country which leads south-eastward from Prishbinskoye to Kyzyl-Agach and then runs within a mile of the coastline to Lenkoran'. From Lenkoran' to Astara the coastal road is partly gravel-surfaced and partly unimproved.

The Baku - Astara road differs in construction from section to section but along most of its extent it is sufficiently well built to be considered usable in all weather. For a distance of 35 miles southwest of Baku (to Purvanag), the road is reported to be paved with asphalt; it may possibly be paved all the way to Alyaty. Postwar reports indicate that the stretch between Alyaty and Salyany has undergone a great deal of improvement. The road is apparently being resurfaced with compacted crushed rock and gravel. Parts which are not resurfaced become impassable to motorized vehicles after heavy or prolonged rains. South of Salyany the surface is predominantly crushed rock but some sections are asphalt paved. Major repairs are currently under way on the stretch between Lenkoran' and Astara.

In the northern part of the coastal region, where the foothills of the Great Caucasus Mountains approach the Caspian sea, the few improved roads and through routes are located near the sea coast. Unimproved, country roads which generally follow valleys and lowlands comprise the

vast bulk of the irregular road net. Only scattered stretches have been improved. Improvements usually consist of little more than grading or the application of a loose gravel surface. Traffic can move over these roads throughout the year. They become impassable to motorized vehicles for only short periods after rain or snowfalls. Horse-drawn traffic is rarely halted completely. Along the Caspian coast, in addition to the Baku - Astara road, a small net of improved roads winds through the petroleum bearing Kara-Dag area. These roads are gravel and sand surfaced and range between 15 and 25 feet in width.

In the central part of the region roads avoid the swampy and sandy coastal terrain and are concentrated at the region's western margin. There is a secondary concentration along the Kura River to the Caspian. The road net is comprised principally of unimproved roads and trails. The better roads have a surface of loose gravel or small stones. Along the Kura sand is also utilized as a surfacing material. The large, unpopulated swampy and sandy area northeast of the Kura is crossed by only a few trails. This area extends westward from the Caspian coast to the Alyaty - Sal'yany road; its northern limit lies in the vicinity of Khidyrlly. A similar expanse, fronting on Zaly Imeni Kirova, is located south of the Kura. The Alyaty - Sal'yany section of the Baku - Astara route, the Kazi-Magomed - Sal'yany road and the Sal'yany - Neftechala road are the principal through routes.

The Kazi-Magomed - Sal'yany, Sal'yany - Neftechala, and parts of the Alyaty - Sal'yany road are trafficable throughout the year. Most of the other roads become muddy and largely unsuitable for use from

mid-January until late March. However periods of muddiness continue to restrict movement until May.

The Salyary - Neftchala road is a recently improved, two lane road running along the right bank of the Kura. The road runs along an embankment and tends to follow the meanders of the Kura River. The entire route is probably surfaced with an asphalt-gravel mixture. On the outskirts of Neftchala oil derricks can be seen along both sides of the road.

In the southern part of the Baku - Astara Region the better roads are again found on the narrow coastal lowland. The Talysh Mountains have a very poor system of roads. The main roads of the Talysh run along the larger stream valleys to the coastal lowland. From north to south these valleys are the Vilyashchay (Velesh-Chay), Lenkoran' (Lenkoranka), Vesharyu, Tangyaryu, and the Astara-Chay. Numerous trails and short, narrow, dirt roads branch off the principal valley routes. There is very little integration of these individual valley road nets. Only the roads following the Vilyashchay, Lenkoran', and Astara-Chay Rivers appear to be improved. The Vilyashchay and Lenkoran' roads lead westward to the Soviet-Iranian frontier; the Astara-Chay road follows the international border. All are used for supplying frontier forces. Extensive repairs have been made on the Vilyashchay and Lenkoran' roads during the postwar years.

C. Water Transport

River transportation in the Baku - Astara Region is negligible, primarily because the rivers are short and shallow. Small boat traffic

of local importance moves only on the Kura River. Flat-bottomed boats drawing up to 3 feet of water can navigate the Kura at any time of the year. From April to June, small freighters and tugs can go as far as the town of Yavlah, many miles west of the coastal region. Navigation along the lower course is greatly impeded by shifting sand bars. The busiest landing is at Sal'yany. Oil tankers plying the Caspian Sea operate regularly from Bol'shoy Orlat located near the mouth of the Kura.

The Caspian merchant fleet has shipping routes from Baku to three ports, Fort Il'icha, Lenkoran', and Astara. All are suitable only for small ships as approaches are shallow. Larger vessels must anchor 2 or 3 miles offshore and freight is ferried in by lighters. The principal articles of trade are lumber, fish and fish products, grain, and fruits. Lenkoran' and Astara have some degree of importance as ports of call for vessels engaged in trade with Iranian ports.

IX. Military Installations

The Baku - Astara Coastal Region is in general not heavily militarized but concentrations do exist at several points. The Baku petroleum fields located slightly to the north are strongly defended by anti-aircraft artillery. At least 6 airfields are also found on the Apsheron Peninsula. Within the region anti-aircraft positions are located at Lenkoran', Sal'yany, and possibly Neftechala. Small airfields are located near Alyaty, Pirsagat, Sal'yany, Neftechala, Lenkoran', and Astara. Astara also has a small seaplane anchorage. None appear to be currently of great importance. They are probably standby

facilities which can be readily converted to fighter bases for the defense of the Baku petroleum area. The Alyaty field is probably now being used for pilot training. The fields at Neftechala, Lankaran¹, and Astara are being used by civil airlines. They can handle only light transports.

The usual quota of border guards and installations is distributed along the Soviet-Iranian boundary. A regiment of troops is reported to be stationed at Astara.

Baku is a major operating base for the Soviet Navy's Caspian Flotilla, which is maintained primarily for training purposes. Most of the vessels attached to the flotilla are small consisting of units such as torpedo boats, gun boats, minesweepers, and patrol boats. The Caspian Fleet also has submarines. The Soviet Naval Academy and a submarine training school are located near Baku. The offshore islands between Baku and the mouth of the Kura River are reported to be sites of naval activity. Naval exercises have been conducted in the Lankaran¹ - Astara vicinity.

X. Analyst's Note

The reliability of the information given in this report on inland terrain, vegetation, and climate ranges from good to excellent. The lack of recent maps and textual materials, however, precludes an accurate and complete terrain description of the shore and offshore islands.

Hydrographic information is incomplete, especially on the Caspian. Data on population, transportation, and military information are regarded as reliable but incomplete.

The place names used generally conform with those on the 1:250,000 orientation map. Sheet J-39-5 of the orientation map is a photocopy of an AMS provisional sheet. Consequently it is not accurate in scale. Another deficiency of this sheet is that the coastline of the Caspian was not corrected in compilation. As a result the southern sheet does not correspond to the others. Sheets of the Russian 1:100,000 series, based on surveys of the period 1936-1940, which are available at the Army Map Service Library, provide the largest scale map coverage for the region. The aerial photos, accompanying this report, are selected strips, showing the northern, south-central, and southern parts of the region. Series 1 (17 sheets, GX 1412 B, SK, 77-93) extends from Baku to Alyaty, Series 2 (16 sheets, GX 1990, SG, 72-87) from Ondzha-Kelya (5 miles west of Kyzyl-Agach) to Kholmili (on the coast 6 miles south of Lenkoran'), and Series 3 (6 sheets, GX 1990, SG, 57-62) from Mashkhan (about 2 miles south of Sheakeran) to Astara. More extensive aerial photography is available at the Graphic Register of CIA.

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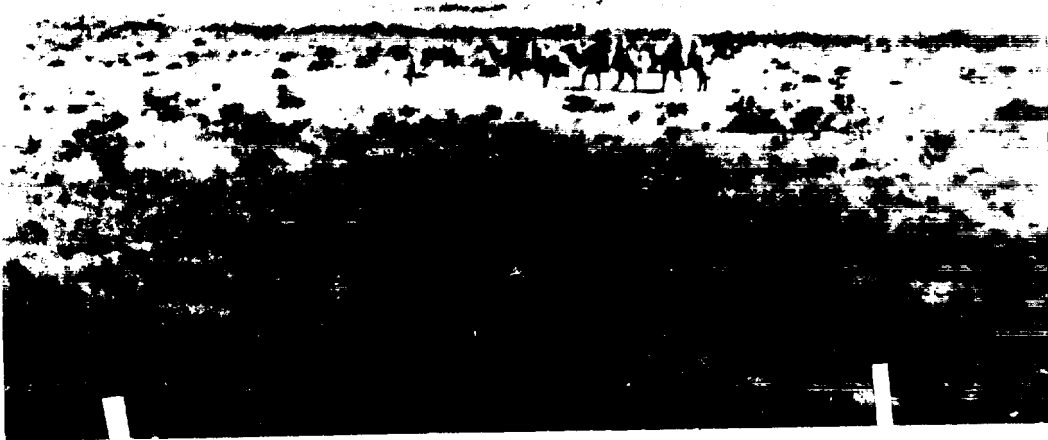


Figure 1. Coastal plain south of Baku. Note steppe vegetation in the foreground. The clumps are probably wormwood.



Figure 2. Crater-like summit of mud volcano Lokbaton with oil field in the background.

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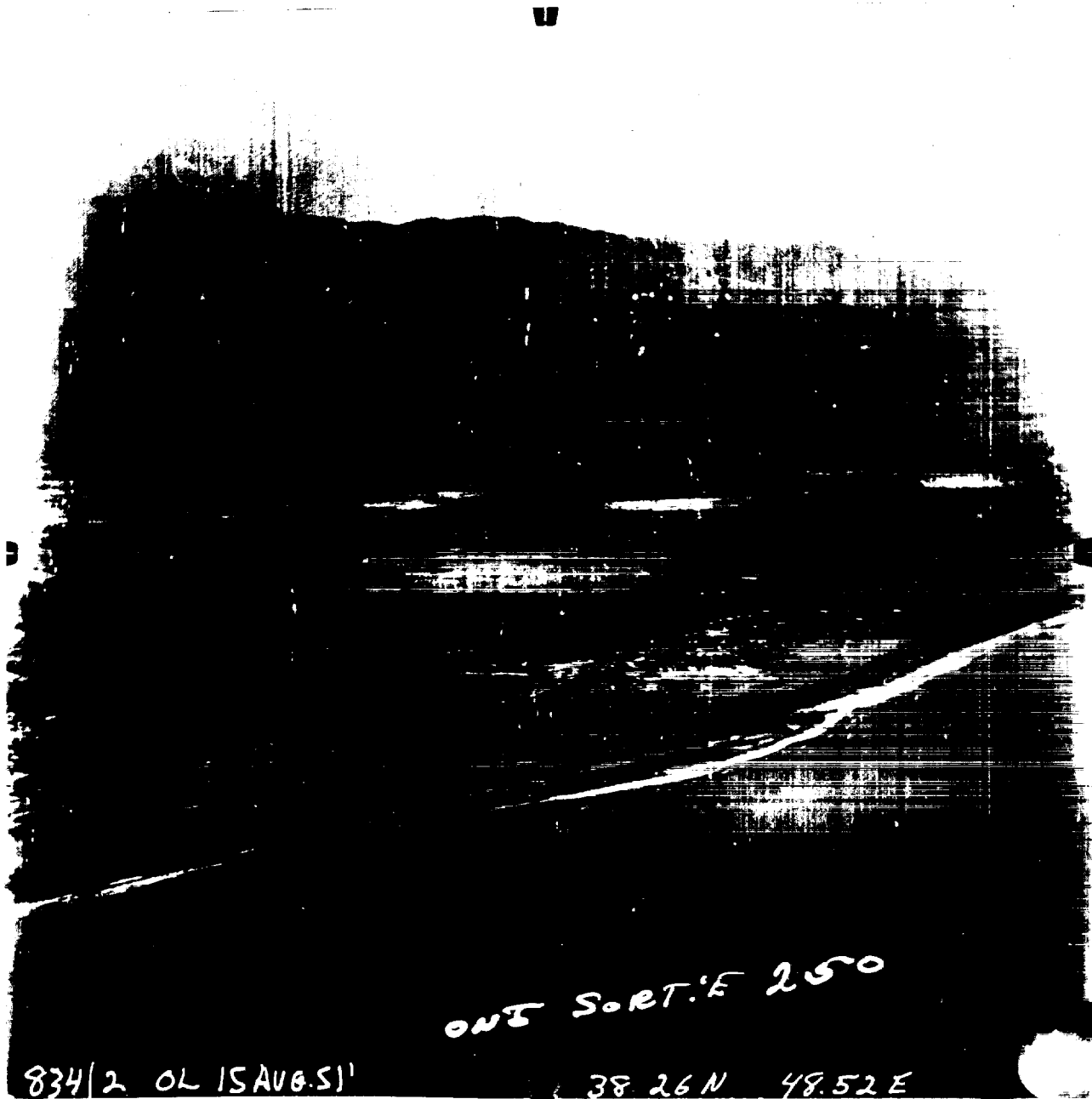


Figure 3. A panoramic view of the southern coastal plain with the Talysh Mountains in the background. Soviet Astara is in the center and Iranian Astara is to the left.

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Figure 1. The straight coastline north of Astara.

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Figure 5. Flat Lenkoran' plain extending northward from Iranian side of the Astara River.



Figure 6. Talysh Mountains rising steeply from the western side of the coastal plain near Astara.



Figure 7. The eastern Astara Valley and Soviet-Iranian frontier along the valley bottom.



Figure 8. Lower Kura River near the village of Yukhari-Khily.

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Figure 11. The road to the Soviet border, 1/2 mile from the Soviet border, 2/3 mile from the Soviet border, 3/4 mile from the Soviet border, 4/5 mile from the Soviet border.

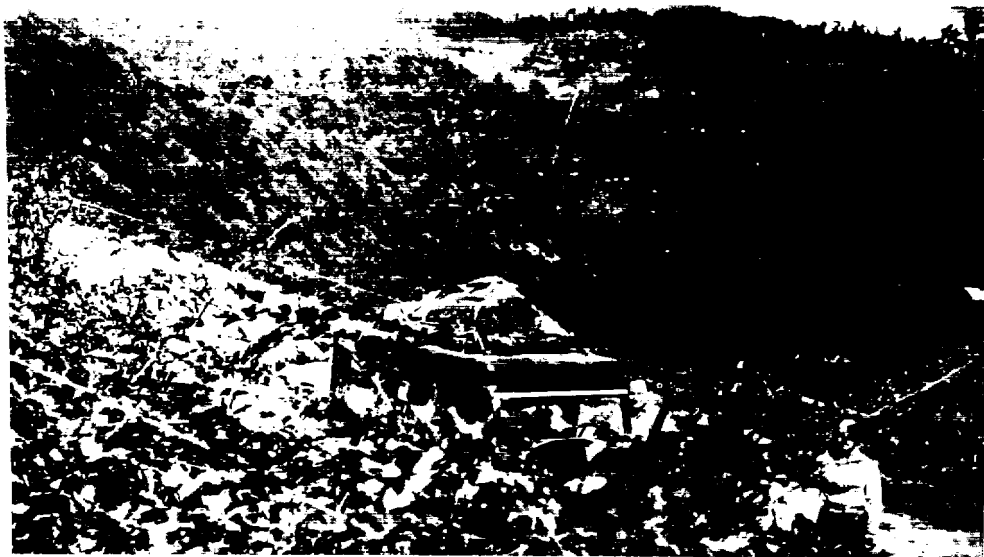


Figure 12. Dense forest cover on Talysh Mountain slopes of the Azerbaijan-U.S.S.R. border.

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Figure 11. Fishing village probably near the mouth of the Kura.



Figure 12. Lenkoran's street scene.

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Figure 13. Soviet Astara as seen from Iranian Astara.

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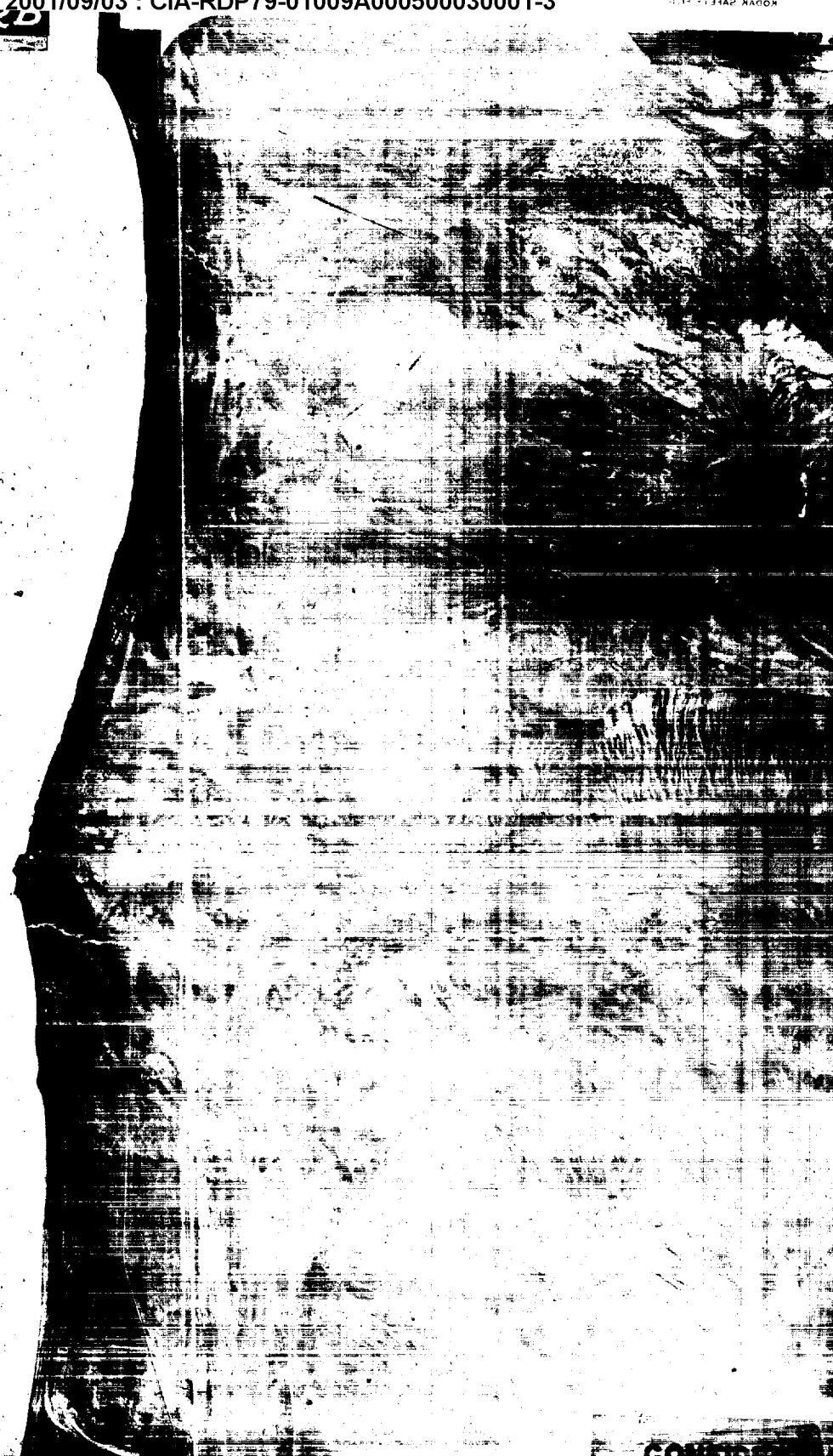
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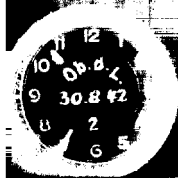
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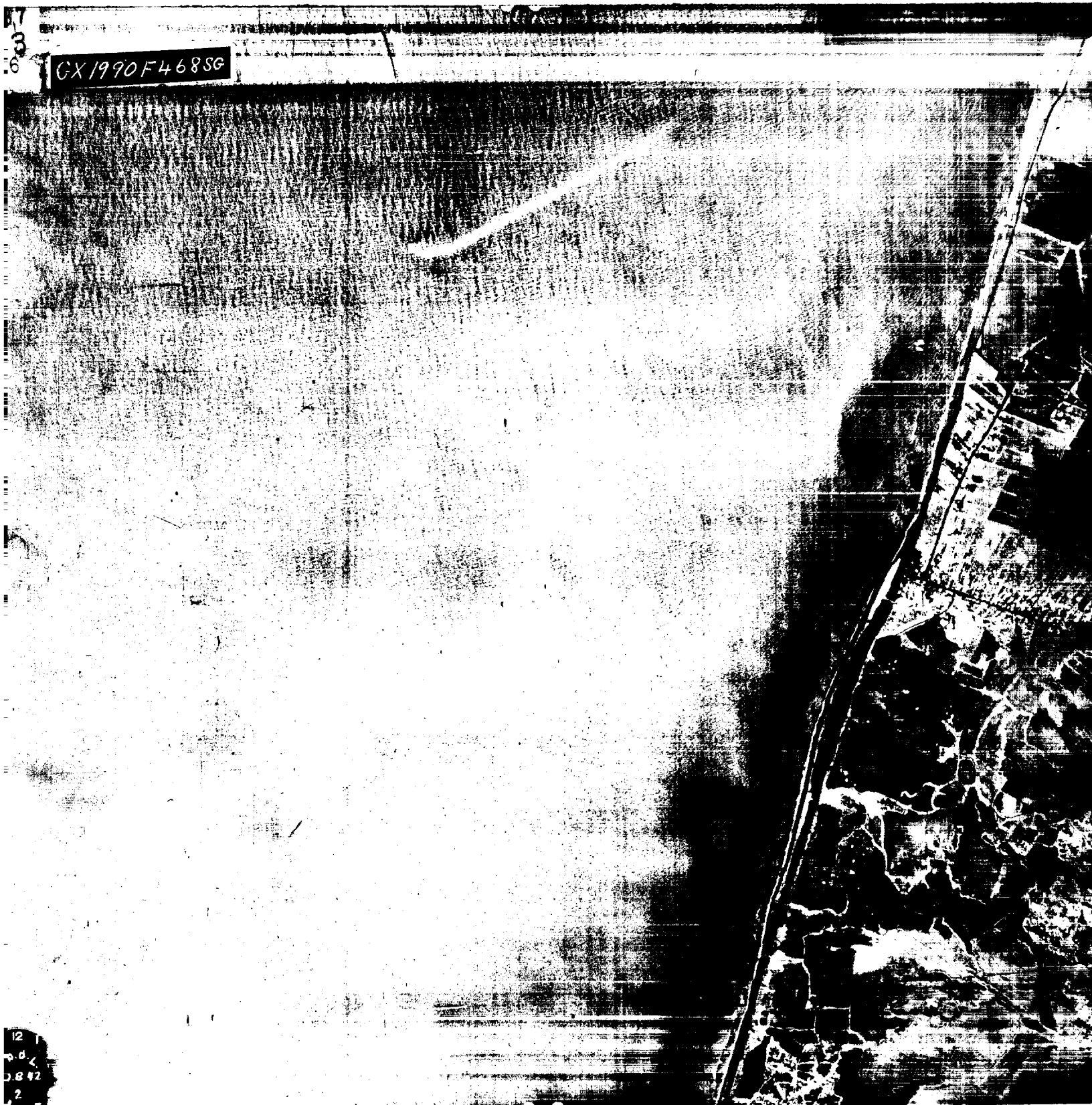


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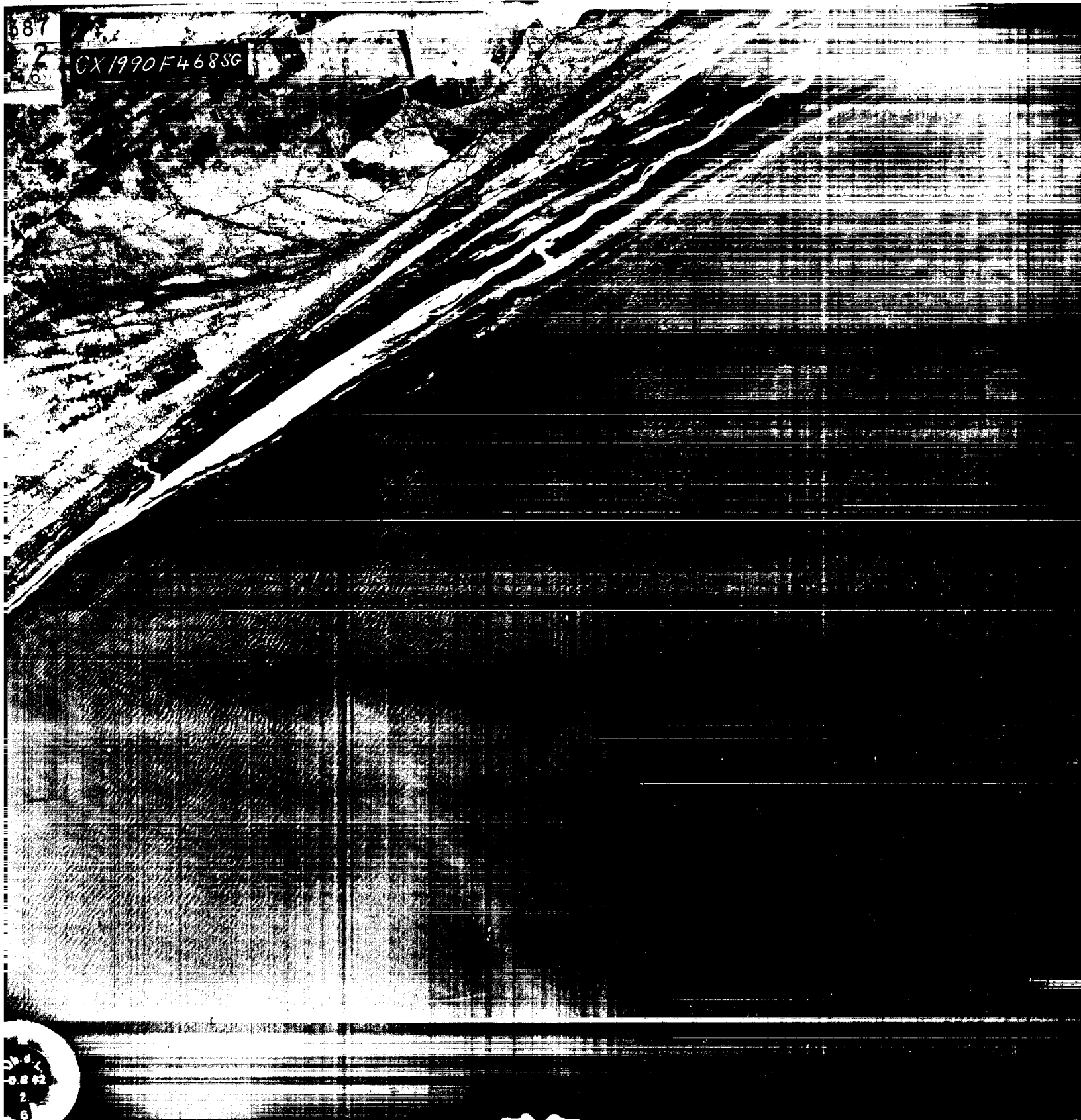
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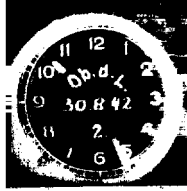






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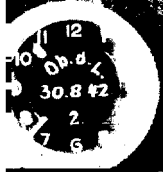


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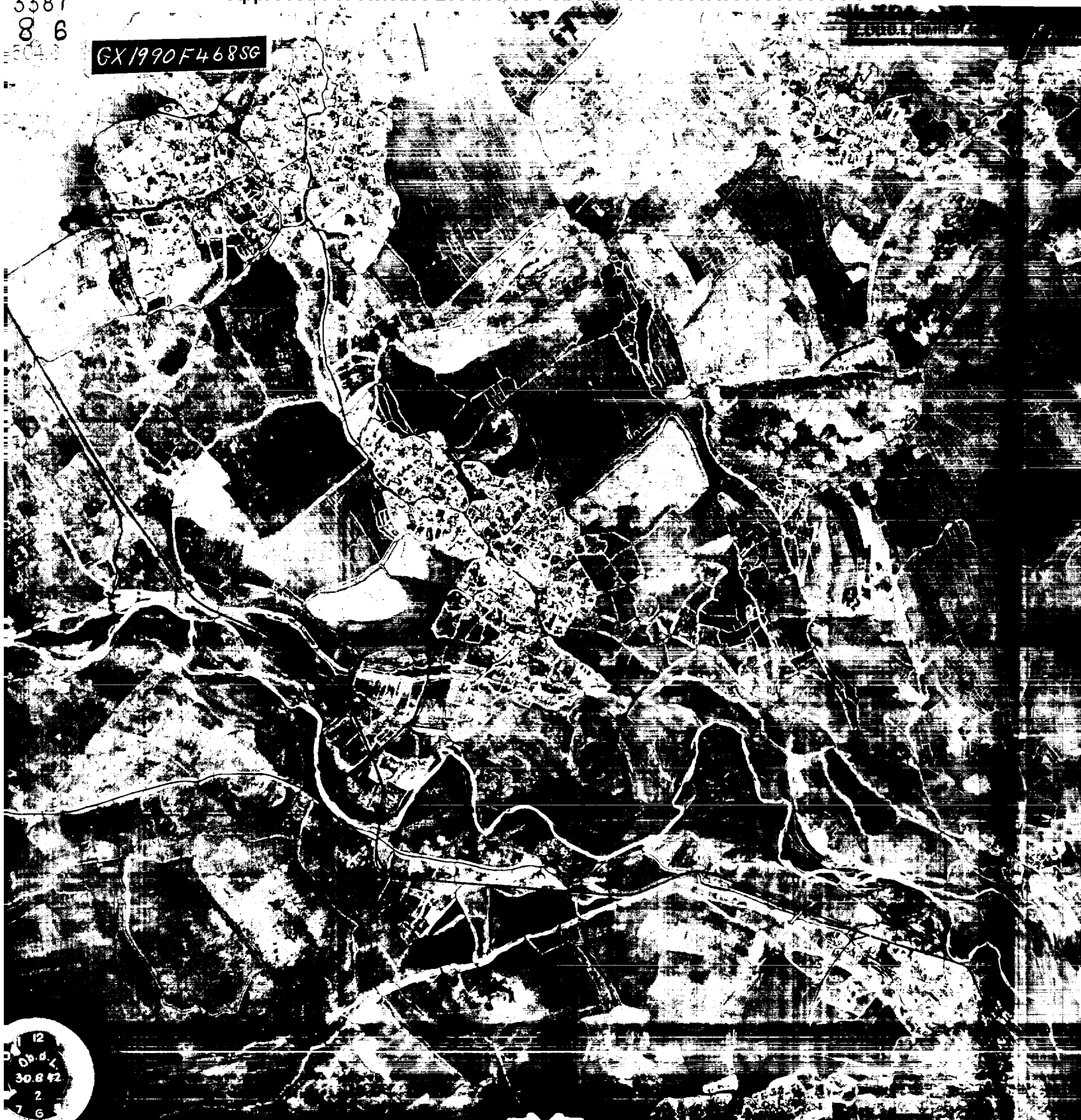
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